Evaluation of Pesticide Supplies and Demand for 1974, 1975, and 1976

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ABSTRACT

This report provides information on (1) pesticide production difficulties in 1974 and 1975 and their effects on pesticide supplies, and (2) pesticide demand estimates for the same years. Producers that accounted for about 75 percent of the basic farm pesticide production in 1971 were surveyed. Regional pesticide distributors covering most of the United States were also contacted for information on pesticide distribution and local availability.

Many pesticide producers had difficulty achieving planned output for some pesticides in 1974. Output of about half of the pesticides produced fell below producers' goals, and overall production was about 10 percent below planned output. At the same time, the demand for pesticides increased an estimated 15 percent in 1974 over 1973. Thus, there was a tight supply-demand situation with serious shortages of some products. The situation for 1975 is substantially improved with a 10-percent increase in production, but demand is holding at about last year's levels. Supplies of most pesticides should be adequate, or nearly so, in 1975. Additional production capacity should be on stream, and raw material shortages should have a smaller impact in 1976.

Key Words: Pesticide production, pesticide supply, pesticide demand, pesticide outlook.

PREFACE

Interest in preparing this report came from lawmakers who must assess the impacts of alternative policies on domestic and world food supplies, farm income, regulatory programs, environmental quality, energy use, and import and export policies, and from pesticide producers, distributors, and users, who are concerned about adequate supplies of pesticides for domestic and foreign use.

The authors wish to express their appreciation to David Bell, Economic Research Service, for his assistance in developing and reviewing this study, and to many persons in the chemical industry who assisted in developing the survey schedule. Appreciation is also expressed to the chemical firms that cooperated in providing a large amount of information on rather short notice.

The use of trade names in this report is for identification only and does not constitute endorsement of such products or imply discrimination against other similar products.

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SUMMARY

1974

Many pesticide producers had difficulty achieving planned output in 1974. About 70 percent of the firms responding to an ERS survey of basic pesticide producers indicated they were unable to meet 1974 production goals for all of their pesticide products. Output of about half of the pesticides produced fell below goals, and production was about 10 percent below planned output.

Nearly 80 percent of the producers had difficulty obtaining raw materials. However, other factors also contributed to the shortfall, including fuel availability, input prices, plant capacity, transportation bottlenecks, and construction problems.

Demand for pesticides (active ingredients) increased an estimated 15 percent in 1974, over 1973. This increase is attributed to strong crop prices, increased crop acreage, and increased foreign demand for pesticides. Herbicide demand increased the most because of its continued use as a substitute for fuel, machinery, and labor.

Because of increased demand and limited pesticide production, inventories were reduced drastically in 1974. Basic producer year-end inventories dropped from an estimated 14 percent of production in 1973 to 8 percent in 1974, and distributor inventories fell from about 12 to 5 percent of sales. This drawdown was necessary for producers to offset their production losses and realize a slight net gain in supply of pesticides in 1974.

Thus, pesticide supplies in 1974 were only slightly short of aggregate demand. However, difficulties in distributing materials to the areas where they were needed in a timely manner created some serious problems. Shortages of specific products were frequently reported, but growers could usually obtain satisfactory substitutes.

The tight situation caused a 25-percent price rise in 1974 for basic pesticide products, and about a 12-percent rise for formulated products at the wholesale level.

1975

There were generally fewer pesticide production problems in 1975 than in 1974, and most of those occurred in the first half of the production season. Total output was expected to be up about 10 percent. However, there were few inventory reserves to draw on for the 1975 season.

Pesticide demand in 1975 is expected to be about the same as in 1974. While the demand for cotton pesticides should be down about 25 percent, increases in use on soybeans and other crops should offset this. On balance, pesticide supplies appear to be about adequate for this year's demand. Little buildup in inventories is expected. Prices for basic products are reported to be up 25 percent, and wholesale prices for formulated products are up about 20 percent this year.

1976

Substantial expansion of production capacity is currently planned or underway. Twenty-one of 29 firms have reported they were expanding or planning capacity expansions of production facilities, including 13 for fungicides, 18 for herbicides, 13 for insecticides, and 5 for other products. This expansion is increasing supplies only slightly for 1975, but should substantially increase supplies in 1976. In addition, the availability of raw materials should continue to improve.

EVALUATION OF PESTICIDE SUPPLIES AND DEMAND FOR 1974, 1975, and 1976

by

Theodore Eichers and Paul Andrilenas 1/

INTRODUCTION

Pesticides are essential for modern agricultural production. Without them, commercial production of certain fruit and vegetable crops would be almost impossible, and substantial losses would occur in some field crops due to insect and fungus damage. Also, large increases in the use of labor, machinery, and fuel would be required for weed control.

During the 1974 planting and growing season, farmers and distributors reported shortages of a number of pesticide products, and manufacturers reported difficulties in achieving planned pesticide output. Policymakers were concerned about the adequacy of pesticide supplies for domestic and foreign needs, particularly in the developing nations. While the situation has improved in 1975, continued shortages are still reported for some individual pesticides, and demand remains strong.

This report reviews problems in pesticide production, the factors affecting pesticide supply and demand in 1974 and 1975, and the outlook for 1976. The production and supply sections of this report are based on data obtained from 29 basic pesticide products which accounted for about 75 percent of the farm pesticides used in 1971. Regional pesticide distributors covering most of the United States were also contacted for information on pesticide distribution and local availability.

1/ Economists, National Economic Analysis Division, Economic Research Service, U.S. Department of Agriculture.

Pesticide Production

The production and use of pesticides has increased dramatically in the last 20 years. Farmers' expenditures rose from $180 million in 1954 to an estimated $1.5 billion in 1974.2/

Recent Production Problems

In spite of the continuing increase in the use of pesticides, the industry generally has been able to expand output sufficiently to meet rising demand. However, in 1974 and again in 1975, the industry experienced difficulty in satisfying all of their customer needs. More than 70 percent of the producers indicated they were unable to achieve planned output for all of their products in 1974.

Output of about half of the pesticide products was reported to be below planned levels, and overall production fell about 10 percent short of producers' goals in 1974. Difficulties in realizing planned output were reported relatively more often for herbicides and fungicides than for insecticides and other pesticides. Survey respondents indicated that in 1974 they failed to achieve planned output for two-thirds of their fungicide and 62 percent of their herbicide products (table 1). Herbicide, insecticide, and fungicide production fell about 9, 6, and 14 percent respectively below 1974 goals.

Producers generally were better able to achieve planned output in 1975 than in 1974. The proportion of products falling below planned output dropped from one-half in 1974 to an anticipated one-third in 1975. Overall production was expected to be about equal to 1974 planned output, compared with a 10-percent shortfall in 1974. Producers' anticipated 1975 production should be 10 percent greater than actual 1974 production. As in 1974, producers reported fungicides and herbicides most frequently as the products short of output goals in 1975.

Factors Limiting Production

The inability of some basic pesticide producers to fully meet their planned 1974 production schedules was caused by several factors, including raw material shortages, regulatory restrictions, container availability, construction problems, high prices for raw materials, limited plant capacity, fuel availability and price, and transportation problems.

2/ Based on estimates of the Farmer Cooperative Service and Economic Research Service, U. S. Department of Agriculture.

Table 1--Estimated pesticide production, planned and realized, 1974 and anticipated 1975 1/

Item and year	Herbicides	Insecticides	Fungicides	Other pesticides	All pesticides
1974					
Percent of firms short of goals	--	--	--	--	72
Number of products produced	47	39	15	20	124
Products short of meeting 1974 goals:					
Number	29	14	10	8	62
Percent of products short	62	36	67	40	50
Actual production as a percent of planned production	91	94	86	102	91
1975					
Percent of firms short of goals	--	--	--	--	40
Number of products produced	47	37	15	20	122
Products short of meeting 1974 goals:					
Number	16	9	7	6	38
Percent of products short	34	24	47	30	31
Expected 1975 output as:					
Percent of 1974 actual production	111	104	116	108	110
Percent of 1974 planned production	101	98	100	100	100

1/ Based on a pesticide industry survey conducted in February and March, 1975.

The energy crisis has been an important factor contributing to current pesticide production difficulties. However, pesticide shortages were not confined to petroleum or energy-based raw materials, nor were energy supplies a major limiting factor. Frequently, minor ingredients, whether petroleum based or not, were the real problem. While producers could arrange for assured supplies of the major raw materials, they were sometimes unable to produce certain pesticides because some minor, but essential ingredient, was lacking.

Raw material shortage was cited as the most important reason manufacturers did not meet all their production goals in 1974. Nearly 80 percent of the survey respondents reported raw material difficulties in 1974 (table 2).

In 1975, pesticide producers are experiencing fewer production problems. Shortages of raw materials and high prices of raw materials reportedly were still restricting production, at least in the first half of the production year, but they are less of a problem than in 1974. Raw material shortages, for example, were reported by only 34 percent of the firms responding for 1975, compared with 79 percent for 1974. Other factors limiting production in 1975 were fuel availability and price, regulatory restrictions, plant capacity, and transportation and construction problems.

While the situation in 1975 has improved over 1974, 53 raw materials or other productive factors were reported to be in short supply in the first half of the 1975 pesticide production season (table 3). In most cases, only one firm experienced difficulty in obtaining a specific raw material. But a number of products were reported to be in short supply by two or more firms. Shortages of these materials ranged from 10 to 100 percent of the amount required by the reporting firms for producing certain pesticide products. firms for producing certain pesticide products.

About 55 different pesticide products were affected by these shortages including 20 herbicides, 9 insecticides, 10 fungicides, and 16 unidentified or other pesticides.

Plant Capacity

Limited capacity was frequently cited as a reason for not expanding pesticide output, especially in 1975. For several years pesticide producers were reluctant to expand their facilities because of price controls and an uncertain market outlook. However, 21 firms indicated in February of 1975 that they were expanding or planning to expand capacity for one or more products. This represented 49 separate expansions (table 4).

Production from most of the new capacity, however, was not expected to be available for the 1975 growing season. Only 8 of the expansion projects were definitely expected to be on stream for the 1975 season. Six projects are to be on stream for the 1976 season, another is expected to be producing for 1977, but most had uncertain completion dates.

Table 2--Percentage of firms reporting factors limiting pesticide production, 1974 and 1975 1/

Factors limiting production	Firms reporting factors limiting production	
	1974	1975
	Percent	
Raw material availability	79	34
Regulations, EPA and other	41	17
Raw materials price	24	21
Fuel availability	21	14
Fuel price	21	14
Container availability	28	7
Construction problems	24	10
Transportation	17	7
Other factors	76	41

1/ Based on a pesticide industry survey conducted in February and March, 1975.

Tables 3--Estimated impact of raw material shortages on pesticide production, 1975 1/

Type of pesticide affected	Raw materials in short supply 2/	Pesticides affected
	Number	Number
Fungicides	4	10
Herbicides	27	20
Insecticides	10	9
Other pesticides	5	8
Unidentified	9	8
Total	53	55

1/ Based on a pesticide industry survey conducted in February and March, 1975.
2/ Does not add to total because some raw materials were used for more than one type of pesticide.

Table 4--Pesticide plant expansions planned or underway, February 1975

Type of pesticide	Reported expansions 1/	Expansions scheduled to be complete in--			Expansions whose completion dates are uncertain
		1975	1976	1977	
	Number				
Fungicides	13	--	--	--	13
Herbicides					
Corn and small grains	10	3	2	1	4
Cotton, soybean, and peanut	3	1	--	--	2
General	5	1	--	--	4
Total	18	5	2	1	10
Insecticides:					
Corn	3	--	1	--	2
Cotton	3	--	2	--	1
Fruit and vegetable	4	1	1	--	2
General	3	--	--	--	3
Total	13	1	4	--	8
Miticides and acaricides	3	1	--	--	2
Other pesticides	2	1	--	--	1
All pesticides	49	8	6	1	34

1/ May include expansions by more than one firm for the same product. These expansions involve 21 firms out of the 29 surveyed.

The 49 expansions planned or underway include 13 for producing fungicides, 18 for herbicides, 13 for insecticides, and 5 for remaining types of pesticides. Over half of the new herbicide plants were for the production of products to be used on corn and small grains. Expanded facilities to be used in producing insecticides were divided about evenly between those to be used to produce insecticides for use on corn, cotton, fruits and vegetables, and those to be used to produce general-use insecticides.

Pesticide Formulation

Formulation is an important step in the pesticide production process. Generally the same factors hampered pesticide formulation as hampered basic production, that is, shortages of raw materials, containers, fuel, and the like. Several firms were concerned about the impact of increasing government regulations. Increasing costs were cited more often as a problem in formulation than in basic production. There was more concern over costs because formulators are frequently small operations with low margins and little reserve capital. Increased costs must be passed on to the customer. But a number of respondents also were concerned that growers would not be willing to pay the higher prices required to cover the added costs of pesticide formulation. Considerably fewer formulation problems were reported for 1975 than for 1974, with limited capacity a relatively more important factor in 1975.

Because of the need for petroleum-based solvents and emulsifiers in producing certain products, the type of formulation is an important factor to consider in examining pesticide shortages. Emulsifiable concentrates generally require a large proportion of petroleum-based ingredients, while wettable powders, granulars, and dusts require clay or gypsum as the primary additive or diluent in the formulation process. Thus, the dry types of formulations are less likely to be affected by petrochemical shortages than emulsifiable concentrates.

In 1974, 44 percent of the pesticides produced by the reporting firms were formulated as emulsifiable concentrates, 21 percent as wettable powders, 10 percent as granulars, 3 percent as dusts, and 22 percent as other formulations (table 5). The distribution among the various formulation types was almost unchanged in 1974 and 1975. Formulation types apparently are not changed frequently because of raw material availability, regulatory requirements, equipment needs, or customer preference.

Net Supply Available

The net pesticide supply depends on production, imports, exports, and changes in inventories. This section examines the effects of these factors on the available pesticide supplies.

Exports and Imports

The United States typically exports a substantial share of its pesticide production and imports very little. Basic producers expect that slightly

Table 5--Distribution of pesticide production by formulation types, 1974 and 1975.

Type of formulation	Pesticide production	
	1974	1975
	Percent	
Emulsifiable concentrates	44	45
Wettable powders	21	21
Granular	10	8
Dusts	3	4
Other formulations	22	22
All formulations	100	100

Table 6--Estimates of pesticide demand, inventories, exports, prices, and production of basic pesticide producers, 1973 to 1976.

Item	1973	1974	1975	1976
Demand (percent of previous year)	--	117	109	108
Year-end inventory (percent of production)	14	8	9	--
Exports (percent of sales)	--	20	21	--
Prices received (percent of previous year)	--	125	123	--
Production (percent of previous year)	--	--	110	--

over 20 percent of production will be exported in 1975, about the same as in 1974 (table 6). They expect to export 20 to 25 percent of the insecticides and fungicides and about 10 to 15 percent of the herbicides.

Insecticides account for a major share of the exports. From 1970 to 1973, they accounted for about 55 percent of the value of exports, while they accounted for only 35 percent of the value of production. On the other hand, herbicides accounted for only 30 percent of the export value, but nearly 60 percent of the value of production.

Inventories

Producers and distributors normally carry over sizable pesticide inventories from one season to the next. These inventories provide a safeguard against unforseen difficulties and assure a smooth flow of goods throughout the season. Producer and distributor pesticide inventories normally range between 12 and 15 percent of production or sales.

Basic producer inventories at the end of 1974 amounted to 8 percent of production, down from 14 percent in 1973 (table 6). Inventories at the end of 1975 are expected to be somewhat greater than at the end of 1974.

Distributor inventories were reduced by more than 50 percent in 1974. They dropped from an average of 12 percent of sales at the end of 1973 to 5 percent at the end of 1974 (table 7). Some distributors, however, had no inventories to draw upon and orders had to be filled as supplies became available from their suppliers.

Summary

While 1975 production is expected to be up about 10 percent over 1974, and the export-import balance is expected to be unchanged, the net supply is expected to be up no more than 5 percent because of the drastic inventory reductions last year. If inventories for the 1976 use season are to be rebuilt to any extent in 1975, this would reduce supplies available for use during the season.

Distribution Problems

A number of regional pesticide distributors were contacted for data on pesticide availability. All of the distributors contacted said they were unable to fill some customer orders for pesticide products in 1974 and that they did not expect to be able to fill all their orders in 1975. While basic pesticide producers reported output to be only 10 percent short of their production goals, distributors indicated that they were about 25 percent short of meeting customer requests in 1974 (table 7). Several distributors reported the situation has improved for 1975. But delivery scheduling is again posing problems in 1975 and some products are still not in adequate supply.

Table 7--Selected indicators of pesticide supplies and demand at distributor level, 1974-75 1/

Item	Fungicides	Herbicides	Insecticides	Other pesticides	All pesticides
			Percent		
Sales by type	13	61	22	4	100
Orders successfully filled, 1974	75	79	74	88	75
Expected orders 1975 (percent of 1974)	114	137	120	105	121
Inventory carryover (percent of sales):					
1973 to 1974	9	13	11	13	12
1974 to 1975	4	5	5	6	5
Average rise in price:					
1973 to 1974	16	13	11	11	12
1974 to 1975	20	21	20	20	20
Customers able to obtain satisfactory substitutes, 1974	65	86	75	98	75

1/ Based on replies from seven regional farm supply distributors covering most of the Nation.

All distributors cited shortages of herbicide products in 1974. They reported shortages of from three to nine products per firm, with an average shortage of five products (table 8). Insecticides posed the second most serious shortage problem. About 70 percent of the respondents reported shortages of insecticide products in 1974.

Products reported to be in short supply by distributors in 1974 included: (1) herbicides -- atrazine, simazine, linuron, alachlor, 2,4-D, trifluralin, propachlor, amiben, MCPA, bladex, dicamba, paraquat; (2) insecticides -- phorate, dyfonate, carbofuran, malathion, carbaryl, diazinon; and (3) fungicides -- chlorothalonil, captan, maneb, dodine, difolatan. Individual firms reported shortages for these products, ranging from 5 to 100 percent.

Substitutes

The availability of substitutes helped farmers to reduce the impact of pesticide shortages in 1974. About 75 percent of the customers found satisfactory substitutes for the pesticides they generally use (table 7). Suitable substitutes were obtained by 65 percent of the customers who encountered fungicide shortages, 86 percent of the herbicide customers, 75 percent of the insecticide customers, and 98 percent of the customers for miscellaneous pesticides.

Pesticide Prices

Pesticide prices increased in 1974 and are reported to be up again in 1975. Producers indicated prices of basic pesticide products were up an average of 25 percent in 1974 and have risen about the same amount in 1975 (table 6). Regional distributors reported their prices to retail dealers were up an average of 12 percent in 1974 and about 20 percent in 1975 (table 7). However, prices for a few individual products were reported to be up 50 percent or more in 1975. Price increases were reported to be about the same for herbicides, insecticides, and fungicides in 1975.

Prospects for 1976

Supplies of most pesticides should be adequate or nearly adequate in 1976. Farmers and distributors should be able to obtain supplies of pesticides without most of the delays and allocative procedures experienced in recent years. Additional production capacity should be available by 1976 when many of the expansion programs begun in 1974 and 1975 come on stream. Also, shortages of raw materials that had such a significant effect in reducing supplies of pesticides in 1974 and 1975 should have a smaller impact in 1976. But the problem of energy availability probably will continue and will most likely have some effect on raw material availability.

Results of a survey of basic producers bear out the predicted improvement in the available supplies of pesticides for 1976. Of the 29 firms responding, over half indicated they expected to meet production goals for pesticides in 1976. Another 15 percent did not expect to meet all of their production needs while the remainder were uncertain about meeting their needs. Those firms

Table 8--Pesticide products reported in short supply by distributors, 1974 1/

Type of pesticide product	Firms reporting shortages	Products in short supply		
		Per firm		Total
		Average	Range	All firms
	Percent	Number	Number	Number
Herbicides	100	5	3-9	13
Insecticides	71	2	1-4	7
Fungicides	29	2	1-4	5
Other pesticides	14	1	1-1	1
All pesticides	100	10	8-18	26

1/ Based on replies from seven regional farm supply distributors covering most of the Nation.

that did not expect to meet their production goals or were uncertain about meeting their production goals indicated that they would come closer than a year earlier.

Demand

Demand for pesticides increased substantially in 1974, largely because of the boost in corn, cotton, and wheat acres. Some pesticides especially herbicides, were also being used more intensively. In addition, favorable farm income in 1973 and the farm price outlook for 1974 encouraged the use of pesticides.

The total amount demanded in 1975 should be about the same as in 1974, based on March planting intentions. Total acreage is about the same, but the crop mix is somewhat altered. Even at the current higher prices, fungicides and insecticides are still the best method for controlling plant diseases and insects. Herbicides substitute for labor, energy, and equipment in controlling weeds. The high costs of energy and equipment encourage farmers to continue to use herbicides. However, because of pesticide price increases in 1974 and 1975 and the cost-price squeeze on grower profits, some growers may reduce their use of certain pesticides or select less expensive substitutes.

Herbicides

Farm herbicide demand in 1974 increased by more than 20 percent over 1973. Increased acreage and a continued trend to more intensive use combined to push up herbicide demand in 1974. Corn acres were up 14 percent and wheat acres 20 percent. Furthermore, farmers continue to increase the proportion of crop acres treated with herbicides and to adopt weed control practices that require more herbicides.

Farmers are replacing band treatments over the row with broadcast treatments that spread pesticides over the entire field. This switch from band to broadcast applications may double and sometimes triple the amount of herbicides used per acre treated.

Mixing several herbicides to obtain better weed control is another practice that is increasing herbicide use. A particular herbicide may not adequately control all of the weeds in a field, and several herbicides are frequently mixed together to increase the range of control. Generally, when several herbicides are used in a mixture, the total active herbicidal ingredient used per acre is greater than if only one ingredient is used.

No-till planting has also contributed to increased herbicide use. With no-till planting, herbicides replace mechanical cultivation in controlling unwanted plant growth prior to planting.

Farmers' 1975 planting intentions indicate pesticide demand should be about the same as in 1974. Except for cotton, about the same acreages are indicated for the major herbicide using crops. The decline in cotton acres

should free up supplies of herbicides for soybeans, especially in the cotton-growing areas. Changes in corn and soybean acres should balance out, leaving herbicide demand about the same as in 1974.

A projected 4 percent increase in wheat acres in 1975 should result in less than a 4 percent increase in herbicide use. The wheat increase is mostly in winter wheat areas where herbicides are not used extensively. Wheat acreage is reported to be down in the spring wheat areas which use herbicides more intensively.

Insecticides

Insecticide demand in 1974 rose about 10 percent over 1973. A 14 percent increase in cotton acres and an 8 percent increase in corn acres accounted for the biggest share of the increase in farm insecticide demand.

The decline in cotton acres in 1975 is reducing the pressure on supplies. The reduced demand for the two most important insecticides used in cotton production - methyl parathion and toxaphene - is making additional supplies of these insecticides available for use on other crops. Also, the production capacity used to produce methyl parathion can be used to produce parathion. If the need arises, parathion can substitute for a number of other insecticides in controlling insect pests on certain crops other than cotton, particularly, fruits and vegetables.

EPA action banning the use of aldrin for controlling soil insects has changed the 1975 demand picture for corn insecticides. Because of increased control costs with substitute materials, some farmers are relying on residual action of aldrin applied in earlier years to provide partial, if not adequate, control in the 1975 crop season.

Demand for insecticides used in the production of fruits and vegetables in 1975 should be about the same as in 1974. Tobacco and peanut growers may require more insecticides in 1975; however, the increase would amount to a small percentage of total use.

Other Pesticides

Use of most other pesticides-fungicides, defoliants and desiccants, growth regulators, miticides, and fumigants in 1974 was about the same as in 1973. Demand for defoliants and desiccants, however, was up primarily because of the increase in cotton acres. Acreages of crops that account for most of the fungicides, growth regulators, miticides, and fumigants do not change much from year to year. This stability in acres planted is reflected in the use of pesticides.

The use of other pesticides in 1975 will be affected primarily by plantings. With the decline in cotton acres, the demand for defoliants and desiccants should decline substantially from 1974. Use of fungicides and most growth regulators should be about the same as in 1974. However, raw material shortages will reduce available supplies of certain growth regulators

important to some fruit growers and nurserymen.

Pesticide Supply-Demand Balance

Overall supplies of herbicides should be adequate for most crops in 1975. However, local shortages of specific products were reported because of difficulties in getting materials to the area where they were needed. Total supplies of herbicides used in corn, wheat, and soybean production were estimated to be up 10 to 12 percent over 1974. Supplies of cotton herbicides were expected to be about equal to 1974 (table 9).

The estimated 1975 pesticide supply-demand balance for corn herbicides indicates that the net supply of corn herbicides available relative to demand is about 8 percent greater than in 1974, about adequate to fill most farmers' needs in 1975. The supply-demand balance may also give distributors and producers a chance to rebuild some inventories. However, carryover will not be adequate to rebuild inventories to pre-1974 levels.

The supply-demand balance for wheat herbicides provides producers and distributors little opportunity to add to inventories. Production of wheat herbicides in 1975 should be 20 percent over 1974, but available supplies are less because 1974 needs were met by drawing heavily on 1973 inventories.

The 1975 supply-demand balance for corn and cotton insecticides is improved from 1974. The decline in corn and cotton acres is reducing the quantity of insecticides required by farmers (table 10). This reduction in demand for corn, and particularly cotton insecticides, should give producers and distributors an opportunity to rebuild some of their inventories. The substantial decline in cotton acres, coupled with cotton insecticide supplies that are close to 1974 levels should enable producers and distributors to rebuild inventories. Corn insecticide inventories should also rise, but the increase will be substantially less than for cotton insecticide inventories.

Table 9--Supply-demand balance for herbicides used by farmers, selected crops, 1975

Crop	Demand as percentage of demand in 1974	Supply as percentage of supply in 1974
	Percent	
Corn	102	110
Cotton	76	99
Soybeans	111	111
Wheat	109	112

Table 10--Supply-demand balance for insecticides used by farmers in corn and cotton production, 1975

Crop	Demand as percentage of demand in 1974	Supply as percentage of supply in 1974
	Percent	
Corn	97	109
Cotton	80	100

This publication reports research involving pesticides. It does not contain recommendations for their use, nor does it imply that the uses discussed here have been registered. All uses of pesticides must be registered by appropriate State and/or Federal agencies before they can be recommended.

CAUTION: Pesticides can be injurious to humans, domestic animals, desirable plants, and fish or other wildlife -- if they are not handled or applied properly. Use all pesticides selectively and carefully. Follow recommended practices for the disposal of surplus pesticides and pesticide containers.